

# BEES

## FACTS ABOUT BEES

- There are more than 20,000 distinct bee species around the world, and more than 4,000 in the U.S. alone.<sup>48</sup> Bees exist in all types of climates around the world, from forests in Europe to deserts in Africa, even in the Arctic Circle.<sup>49</sup>
- Worldwide, bee populations are in decline. Many factors such as pests, diseases, viruses, monocultures, and molds each have their own effects, but unfortunately, they often intensify the effects of each other.<sup>50</sup> Over the last decade, multiple reports have indicated that beehives in the U.S. and Europe have suffered hive losses of at least 30%, sometimes higher.<sup>51</sup>
- Wild native bees are also disappearing. For example, in Northern Wisconsin, the most abundant bumblebee in the mid-1990s was the yellow-banded bumblebee. However, in the 2000s the species did not even comprise 1% of the bumblebee population.<sup>52</sup> In fact, one in four wild bee species in the U.S. is at risk of extinction.<sup>53</sup>
- The rusty patched bumblebee was recently added to the U.S. endangered species list by the U.S. Fish and Wildlife Services, after having declined by 87% in just the last twenty years.<sup>54</sup>



## WHY WE NEED TO PROTECT BEES

**Role in the Ecosystem:** Bees are a keystone species; if bees die off it will end most life. In nature, various animals depend on bees for their survival because their food sources – nuts, berries, seeds, and fruits – rely on insect pollination.<sup>55</sup> Pollination also allows floral growth, which provides habitats for animals, including other insects and birds.<sup>56</sup> Lastly, bees themselves,<sup>57</sup> and the honey they produce,<sup>58</sup> are a source of food for many animals.

**Ecosystem Services:** While bee populations continue to decline, the production of food crops will decrease as well, as bee pollination is necessary for several important crops.<sup>59</sup>

Bees are responsible for pollinating 35% of agricultural production and almost 90 different commercially grown food crops in the U.S. alone.<sup>60</sup>

**Economic Contribution:** The global crop production pollinated by bees is valued at \$577 billion.<sup>61</sup> Pollinators contribute \$24 billion to the U.S. agriculture industry, making up a third of the food consumed by Americans.<sup>62</sup>

## THREATS TO BEES

**Use of Pesticides:** Exposure to many pesticides and herbicides can either kill the bees directly or severely weaken the health of a bee colony.<sup>63</sup> [Here](#) you can find detailed information about pesticides that affect bees. Because of the harmful impact of certain pesticides<sup>64</sup> in bees, the European Union has banned bee-harming pesticides and pressure is mounting across the planet for other countries to enact similar legislation.

**Climate Change:** Multiple factors related to climate change affect bees, including variations in vegetation and rising temperatures, which are destroying habitat or creating inhospitable conditions for many species of bees. For example, spring flowers have been blooming earlier in the season, drastically reducing the bee's chance to feed on the pollen.<sup>65</sup>

**Loss of Habitat:** Land use changes, habitat fragmentation, and loss of biodiversity create a lack of foraging opportunities for bees. With industrialization always on the rise, areas of natural habitat are being converted to roads and developments. This pushes the bees off their habitats which causes changes in behavior when it comes to foraging and mating.<sup>66</sup>

**Agriculture Services:** Monoculture farming, or planting only one crop over a large area, contributes to a loss in plant biodiversity. Without a variety of plants to either pollinate or feed on, bees are hampered in their ability to provide for their colony and the ecosystem at large.<sup>67</sup>



## HOW TO HELP BEES

- Support a ban by contacting your national legislative representative. There can be little doubt now that the world's most widely used insecticides – neonicotinoids – are harmful to bees.<sup>68</sup> Neonicotinoid chemicals are absorbed in the pollen of the plants that they are sprayed on. These pesticides can cause behavioral and immune system problems among bees. The European Union realized this problem and banned these harmful pesticides in 2018.<sup>69</sup>
- Sign our [pesticide pledge](#).
- **Plant a bee-friendly garden: There are easy steps that you can take:**
  - Find a nursery near you that sells native and local plants and milkweed good for pollinators in your area. Native plants are the ideal choice because they require less maintenance and tend to be heartier.
  - Follow the instructions in this [link](#) to plant your garden.
  - It is important that no pesticides or insecticides get sprayed on the garden, and particular on the flowers, and if you are planning to use pesticides or herbicides, [here](#) there is important information about how to choose what to use and how to use it.
  - Provide water to pollinators by hanging a dripping bottle or placing a small container of water out in the open. Be sure to change the water 2-3 times per week during warm weather when mosquitoes are breeding.<sup>70</sup> Alternatively, you can install a bird bath with some stones in it for bees to crawl, which is always a nice feature.<sup>71</sup>
- Check out all of Earth Day Network's [resources](#) to help Protect our Species.

# ADDITIONAL RESOURCES

## ARTICLES/BLOGS/READINGS

### **Einstein was right - honey bee collapse threatens global food security** - *Telegraph*

[https://www.telegraph.co.uk/finance/comment/ambroseevans\\_pritchard/8306970/Einstein-was-right-honey-bee-collapse-threatens-global-food-security.html](https://www.telegraph.co.uk/finance/comment/ambroseevans_pritchard/8306970/Einstein-was-right-honey-bee-collapse-threatens-global-food-security.html)

This article talks about the effects of the collapsing bee population on the availability of food.

### **Monsanto's global weedkiller harms honeybees, research finds** - *The Guardian*

<https://www.theguardian.com/environment/2018/sep/24/monsanto-weedkiller-harms-bees-research-finds>

An article on how glyphosate, the weedkiller found in Roundup® and similar products, makes bees more prone to infection.

### **U.S. Should Follow European Union Lead To Ban Neonicotinoid Pesticides** - *American Bird Conservancy*

<https://abcbirds.org/article/u-s-should-follow-european-union-lead-to-ban-neonicotinoid-pesticides/>

This is an article on how the EU banned the use of certain pesticides because of their buildup in the environment, and how the U.S. should follow suit.

## VIDEOS

### **What's the Waggle Dance? And Why Do Honeybees Do It?** - *Smithsonian*

[https://www.youtube.com/watch?v=LU\\_KD1enR3Q](https://www.youtube.com/watch?v=LU_KD1enR3Q)

Honeybees search high and wide for the best flowers. And when they find them, they go back to the hive and "tell" the other bees how to get there.

## STORYTELLING

### **What is it About Bees and Hexagons?** - *National Public Radio*

<https://www.npr.org/sections/krulwich/2013/05/13/183704091/what-is-it-about-bees-and-hexagons>

Have you ever wondered why the cells in beehives are in the shape of a hexagon? This article playfully walks you through the underlying mathematical design of a bee's home!

## OTHERS WORKING ON THIS

### **Burt's Bees Joins E.O. Wilson in Moonshot Goal to Conserve Half the Earth for Biodiversity** - *CSR Wire*

[http://www.csrwire.com/press\\_releases/41469--Burt-s-Bees-Joins-E-O-Wilson-in-Moonshot-Goal-to-Conserve-Half-the-Earth-for-Biodiversity](http://www.csrwire.com/press_releases/41469--Burt-s-Bees-Joins-E-O-Wilson-in-Moonshot-Goal-to-Conserve-Half-the-Earth-for-Biodiversity)

This is an article on a bee conservation partnership that is planning on mapping 6,000 different species of bees.

## **Xerces Society**

<https://xerces.org/>

The Xerces Society is a science-based conservation organization, working with diverse partners including scientists, land managers, educators, policymakers, farmers, and citizens. One of the organization's core focus is on protecting pollinators from habitat loss and pesticides.

## **REPORTS**

### **Study Uncovers New Link between Neonicotinoid Pesticide Exposure and Wild Bumblebee Decline**

- *Worcester Polytechnic University*

<https://www.wpi.edu/news/study-uncovers-new-link-between-neonicotinoid-pesticide-exposure-and-wild-bumblebee-decline>

This a study on how even minimal use of neonicotinoid pesticides can negatively affect bees.